

**ABSTRACT**

A method for dynamic recompilation of source software instructions for execution by  
5 a target processor, which considers not only the specific source instructions, but also the  
intent and purpose of the instructions, to translate and optimize a set of equivalent code  
for the target processor. The dynamic recompiler determines what the source operation  
code is trying to accomplish and the optimum way of doing it at the target processor, in  
an “interpolative” and context sensitive fashion. The source instructions are processed in  
10 blocks of varying sizes by the dynamic recompiler, which considers the instructions that  
come before and after a current instruction to determine the most efficient approach out  
of several available approaches for encoding the operation code for the target processor  
to perform the equivalent tasks specified by the source instructions. The dynamic  
15 compiler comprises a decoding stage, an optimization stage and an encoding stage.